Good essay about lan, man and wan

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Introduction

- LAN

LAN helps to connect domestic and commercial purpose computers, workplace computers, terminals and DTE. LAN is a classified facility to connect and is wholly owned by the firm that uses LAN for its operational activities. The cost incurred to establish LAN network is fixed and is not dependent on its usage. LAN offers a tremendous prospect for its users to modulate its connection abilities in numerous ways. The functioning of LAN is generally specific to a certain area like a house, building, organization or campus and provides good bandwidth as compared to conventionally used method of communication. LAN has remarkable ability to provide a single access to various devices. Generally LAN can be partitioned and geographic zone or workstations are usually connected via gateways and bridges .

- MAN

Metropolitan Area Network is one the types of other networks and is comparatively the latest type. MAN serves the same purpose as ISP and has similar purpose the only change is for the business clients it works with big LAN networks. The three most distinguishing features that separate MAN from other two types i. e. LAN and WAN are mentioned below : -

1) The size of the network lies between the size of the other two and MAN mainly covers the distance from 5 to 50 km of diameter. Mostly, MAN covers a wide range of area as large as a city or small as a tower or a building. The size varies depending upon the nature of operation and usage.

2) MAN is not owned by any one firm or entity unlike LAN. The communication network links and gears are mostly owned by a large group of its users or it could be owned by a single owner of network provider who further provides the services to other customers or users. The level and quality of service supplied to each of the customer needs to be discussed and negotiated by the operators of MAN.

3) MAN frequently provides a very high speed connection systems so as to facilitate the sharing of local resources. MAN is often used to facilitate a joint connection with other network with the help of WAN link.

- WAN

The largest of network type is known by the name of Wide Area Network (WAN). These networks are established through interconnecting a large number of LANs and WANs over an even larger region. Internet is the best example of a WAN in which users are interconnected through using their individual devices through their LANs or MANs. Internet is the type of WAN that stretches across the world. Local as well as long distance type of public

facilities are used in the establishment of WANs. In each city, there may be a large number of LANs and one or more MANs. Connecting these networks within a city to an outside city's networks is carried out through establishment of WAN. Therefore, the connectivity amongst various cities can be in general considered as WAN. In such cases, information from one device present in a MAN or LAN in one city gets connected to another device in another city. Several types of routers and other devices are used for establishment of WANs .

Technology

- LAN

LAN uses a broadcast technology appropriate for fairly small distance usually for few kilometers at a much faster speed with minimum error chances. The communication system of LAN works at a very high speed of bit per second and is greatly feasible to support the communication setup of the localized area. LAN is designed to facilitate the connection among the attached terminals and work units. DTEs are primarily supposed to be connected by the help of layered code of systems .

- MAN

In order to create a Metropolitan Area Network, most of the technologies used in LANs as well as WANs are used. High speed disaster recovery systems as well as real-time transaction backup systems supported by the use of MANs. MANs also offer interconnectivity between the corporate users and ISPs. A significant portion of MANs consists of either Ethernet or SONET technology. MAN can be considered as the bridge between LANs and WANs .

- WAN

In the case of WAN, a point-to-point link is establishes the communication path starting from the premises of user through utilizing a carrier network. In most of the cases, the carrier network consists of a telephone company that also offers ISP type of services. The user premises are connected to a remote network like online servers. The communication lines extending in this type of networking are leased from a service provider hence these lines are also called leased lines. The service provider, in this type of networking, allocates specific facility hardware and pairs of wires to the line of a specific user. The price and running charges are based on the bandwidth as well as distance between the local and remote points. There is another type of networks that exist within the WANs. This type of network is known as switched circuits. In these networks, the data communication is only carried out when it is needed and gets terminated when the communication is complete. This type of networks can be closely related to the conventional telephone networks in which the line is active only when the call is in progress. A good example of such circuits include the ISDN or Integrated Services Digital Network. In switched circuits, when a specific router has data to be transmitted to a remote site then the circuit gets initiated and firstly transmits the ID of the remote network to start with the communication. The ISDN connects the two devices i. e. the router from the local to the remote point enabling direct communication between them. The concept is that the ISDN physically calls the remote device router and places the request of the direct connection. After successful establishment of connection between the two networks, the two devices can directly communicate and transfer data. There are several other types of technologies that exist for communication within a WAN

network. These technologies include packet switching. In this type of technology the communication is not based on the direct connection of the devices rather the data is switched in the form of data packets. In this type of switching, the carrier network is enabled to perform a more efficient communication as compared to switched networks like ISDN. The carrier is allowed to create multiple virtual circuits that work primarily in switching manner but with more efficient use of network's infrastructure as compared to ISDN .

Future trends

- LAN

In coming few years the wireless connection will be the most flourished and primary LAN connection. It will increase the mobile and computer wireless devices and emerge as the most reliable and fastest connection system. Ever increasing demands of customers to have wireless connectivity on tablets, iPhone, laptops and devices is posing a great pressure on IT technologists to come up with more profound and serious solutions to security problems encountered by LAN . Future increased usage of wireless connectivity is demanding to overhaul the pitfalls in LAN so as to facilitate the customers in a much proficient manner than ever before. The current business and domestic methods of communication are bringing new revolution in networking enterprises and are pressing to shift to new and more sophisticated and safe network mechanism . Companies are looking for such communication systems that would facilitate their employees, customers and suppliers to be well connected and smooth flow of information. In upcoming years more than 80% of the employed will be using

wireless connection for their day to day business activities and dealings. People will be having more than one wireless devices in coming future in order to meet the business demands and some of these devices are already in market like Android, iPhone, smartphones, computers and notebook .

- MAN

There are many organizations in marketplace who are contemplating to establish wireless connection over a large area like cities and big town as a reasonable replacement of fiber and copper based connections. The cost incurred to build wireless connection is cheap and is feasible to install especially in areas where the issues of physical broadcasting or other legal issues increases the cost of connectivity. The major problem is that so far there has been no proficient and principle based solution for establishing wireless connectivity in the premises of metropolitan city or area. Generally companies mount exclusive or 802. 11 tools for establishing connectivity in the area outside the boundaries of a tower or building. Proprietary structure of systems is very impressive in fulfilling the required level of performance and from the security perspective but at the same time it is far more expensive and comparatively risky if used in long run support. It also fails to provide interoperability which is the foremost demand of the customers. The usage of 802. 11 centered hardware for the network of metropolitan area sharply reduces the cost but meanwhile 802. 11 has certain limitation in its performance especially when supporting a huge number of customers in ensuring bandwidth. Moreover, the RF snooping is frequently a great trouble in using 802. 11when working in a huge area due to the fact of license free activities . Another important hindrance may occur if a competitor install

802. 11 system as a result the customer will suffer due to snooping with the competitor affected by the irregular performance. In such a situation an organization is apparently very helpless to take any action as there are no legal laws currently practice to prohibit the competitor from interfering the connection .

- WAN

This market penetration of this product in only up to 20% and entails a large number of various technologies. it is mainly focused on upgrading the performance level of WAN through various modified techniques such as the amendments in the current protocols as in CIFS. This type of protocols can be frequently friendly are not problematic on local networks because of extremely high bandwidth and comparatively low latency. Wide area with constraints on bandwidth can be a problem for such type of protocols. Organizations are increasingly acknowledging the fact that network and the application can't work independent of each other. If applications have to work in an effective way then network are forced to tackle traffic accordingly. More intelligence is needed here in order to understand the importance and nature of traffic that is being carried. Other changes and future trends in WAN include WAN optimization getting increased, application delivery controllers continuing to hit mainstream, the VoIP reaching its tipping point, green networking becoming the central focus, application-level network services getting an increase in their importance .

Issues

- LAN

LAN encounters numerous problems related to security and the solution to

these problems is through point to point traditional connection systems. Some problems are unique to LAN system. The rapid access to information or data through LAN comes along with serious security issues. The major reason is that the data is accessible to anyone who should or should not have that data. LAN makes the traffic obtainable at or very near to NIU. Concealed or hidden data is not easily detectable. Each of the NIU can easily have an immediate contact with all the information or data available on the network unit to which is linked. The security to LAN system is possible by means of physical protection. The possible approaches are of high degree design substitutes, not just the peculiar mechanism .

- MAN

Avery huge cost incurred in the initial deployment phase and it is not only the huge capital that is involved but also the efforts put in by the human resource. Highly strategic and thorough planning is also needed at the management level and is required in order to establish MAN system. These efforts are further complex by the fact that equipment are already situated and it requires the physical access to it. New and advanced set of skills need to inculcated in human capital to be able to perform in an efficient and productive manner. The skills required by the optical network are very different than those needed by local is network. Companies need to impart training session so as to educate workforce about the new skills through in house training sessions. This will cultivate the culture of sharing knowledge and mutual help among the employees .

- WAN

In the case of WANs, the scope and area of operation is much larger than as

compared to LANs and MANs hence the threats and implementation issues are also greater than these two network types. The implementation issues include standardization of protocols, data rate normalization, and bandwidth distribution. The threats faced by this type of networks include international level hackers, credit card information theft, and corruption of existing data through viruses etc.

Companies

Cisco: Cisco has a large number of types of products that are related to LAN, WAN and MAN. Following are the major types of products offered by the company : -

- Application Networking Services

- Blade Switches

- Cloud and Systems Management

- Collaboration Endpoints

- Conferencing

- Connected Safety and Security

- Customer Collaboration

- Data Center Management and Automation

- Data Center Switches

- Interfaces and Modules

- Networking Software

- Optical Networking

- Routers

- Security

- Servers - Unified Computing

- Service Exchange

- Storage Networking

- Switches

- Unified Communications

- Video devices

- Wireless

Juniper: Juniper produces a variety of products for the purpose establishing and supporting LAN, MAN and WAN types of networks. Following are the types of products and services produced and offered respectively by Juniper to the commercial as well as non-commercial users : -

- End-of-Sale

- Identity and Policy Control

- Network Edge Services

- Network Management

- Network Operating System

- Routers

- Security

- Software Defined Networking

- Switches

- Wireless

Alcatel-Lucent: Alcatel-Lucent is a multi-national company that produces large number of LAN, MAN and WAN devices. Following are major types of devices produced by Alcatel-Lucent .

- Analytics

- Cable MSO Networks

- Cloud

- Content Delivery and Management

- Customer Experience

- Data Center

- Diameter Control

- IMS Communications

- IP/MPLS and Carrier Ethernet

- Messaging

- Microwave Transmission

- Mobile Packet Core

- Next Generation Intelligent Networks

- Optics

- Policy & Charging

- Rich Communications

- Subscriber Data Management

- Wireless Access

- Wireline Access

There are several other companies who are in the business of producing and selling LAN, MAN and WAN related devices. Few major such companies are listed below: -

- Aruba

- Polycom

- Avaya

- Check Point

- Microsoft

- IBM

- Brocade

Global implications

- LAN

Research studies have shown that Ethernet is the best possible choice in the local networks used for domestic and business purpose. The rapid growth in businesses around the globe forces the quick shift to high aptitude and IP based offerings has increased in the growth of the optical networks worldwide and the approaches being used in its deployment. Many of the network supplier are seriously looking to adopt Ethernet as the most powerful and prime option and is turning into the WAN technology of the coming future .

- MAN

In the case of MAN, the global connectivity of WAN is highly affected by the topologies and network structure of MAN. An effective implementation of MAN not only ensures good communication amongst LANs but it also ensures a fast communication rate at the WAN level.

- WAN

The WAN that exists globally is not established in a structured manner. It is merely developed through mishmash of switching, cabling and various routing technologies. These set of devices are supported by a large number of service provider around the globe which are regulated by different local governmental bodies. There is no single set of rules that can be considered universal throughout the WAN .

The internet is in general considered the global WAN. Local governments of

various countries ban their locals from visiting specific websites or content. There are several countries that do not put any restriction on the flow of information over internet. Various intelligence agencies analyze the data flowing through the global WAN or internet. Internet has made the world a global village in which news spread faster than the wild fire. People are closely connected through various tools and programs offered by various companies in various formats. The advent of smartphones and their connectivity with the WAN or internet has enables its users to stay connected virtually all the time with their friends and family.

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